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April 17, 2000

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
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TW-A325
Washington, D.C. 20554

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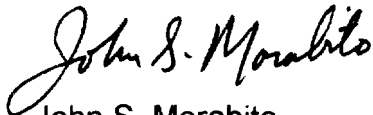
Re: CC Docket Nos. 96-262, et al. (CALLS Proposal)

Dear Ms. Salas:

Enclosed please find an original plus fifteen (15) paper copies and one diskette copy of the Reply Comments of Global Crossing North America, Inc. in the above-captioned proceedings.

To acknowledge receipt, please affix an appropriate notation to the copy of this letter provided herewith for that purpose and return same to the undersigned in the enclosed, self-addressed envelope.

Very truly yours,


John S. Morabito

cc: Ms. Wanda Harris (3)

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In the Matter of)	
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Access Charge Reform)	CC Docket No. 96-262
)	
Price Cap Performance Review for Local Exchange Carriers)	CC Docket No. 94-1
)	
Low-Volume Long Distance Users)	CC Docket No. 99-249
)	
Federal-State Joint Board on Universal Service))	CC Docket No. 96-45

**REPLY COMMENTS OF GLOBAL
CROSSING NORTH AMERICA, INC.**

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April 17, 2000

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Summary

The modified CALLS plan attempts to balance the competing interests of industry competitors and consumer groups in a manner that will result in meaningful reform to interstate access charges and universal service. While some commenters suggest the CALLS proponents are doing a disservice to consumers, the record clearly demonstrates that residential and business subscribers will benefit from more economically sound cost recovery rules, as well as benefiting from other measures proposed by CALLS to protect low income and low volume subscribers. As discussed in Global Crossing's comments, the Commission must adopt some targeted adjustments to address the concerns of smaller carriers and, in particular, the Commission would err if it concluded that mid-size carriers could match the productivity potential of larger incumbent local exchange carriers serving the same market. The record clearly demonstrates support for the adjustments Global Crossing has proposed -- they serve pro-competitive ends, allow full participation in CALLS, and deliver significant public interest benefits.

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**REPLY COMMENTS OF GLOBAL CROSSING
NORTH AMERICA, INC.**

Introduction

Global Crossing North America, Inc. ("Global Crossing"), on behalf of its interexchange and exchange carrier subsidiaries, respectfully submits these reply comments to the comments filed April 3, 2000 in the above captioned proceeding.

The modified CALLS plan attempts to balance the competing interests of industry competitors and consumer groups in a manner that will result in meaningful reform to interstate access charges and universal service. While some commenters suggest the CALLS proponents are doing a disservice to consumers, the record clearly demonstrates that residential and business subscribers will benefit from more economically sound cost recovery rules, as well as benefiting from other measures proposed by CALLS to protect low income and low volume subscribers. As discussed in Global Crossing's

comments, the Commission must adopt some targeted adjustments to address the concerns of smaller carriers and, in particular, the Commission would err if it concluded that low cost, mid-size carriers could match the productivity potential of larger incumbent local exchange carriers (LECs) serving the same market. The record clearly demonstrates support for the adjustments Global Crossing has proposed -- they serve pro-competitive ends, allow full participation in CALLS, and deliver significant public interest benefits.

Argument

I. THE MODIFIED CALLS PLAN REPRESENTS AN APPROPRIATE BALANCE OF COMPETING INTERESTS

Like most Commission rulemaking proceedings, the comments filed in response to the Commission's Public Notice¹ represent competing interests on a host of contentious issues. The CALLS plan, with the participation of interexchange carriers, local exchange carriers, competitive local exchange carriers, and consumer groups, has attempted to balance these competing interests in a manner that will result in meaningful reform to interstate access charges and universal service. For example, in response to concerns of consumer groups, the modified CALLS plan proposes rules to lower the caps on the Subscriber Line Charge (SLC) from its original plan.² The modified plan also proposes a significant reduction in switched access rates without shifting these

¹ Public Notice, Coalition for Affordable Local and Long Distance Services (CALLS) Modified Proposal, CC Docket Nos. 96-262, 94-1, 99-249, and 96-45, DA 00-533 (March 8, 2000).

² See Memorandum in Support of the Revised Plan of the Coalition for Affordable Local and Long Distance Service (CALLS), filed March 8, 2000 in CC Docket Nos. 96-262, 94-1, 99-249, and 96-45, at 2 ("Modified CALLS Plan").

costs to common line as originally proposed.³ Moreover, the modified plan attempts to resolve the Commission's X factor debate, which has been raging for over a decade between interexchange and incumbent local exchange carriers and is currently subject to a remand by the United States Court of Appeals for the District of Columbia.⁴ Regarding each of these matters, CALLS proposes a legitimate and workable set of rules that will clearly serve the public interest.

Some commenters have argued that CALLS is a "deal brokered for advancing specific interests"⁵ or that "true competitive LECs, at this point, have no meaningful part in CALLS' 'comprehensive blueprint.'"⁶ While these commenters may think they were not invited to the CALLS party, they ignore the fact that the Commission has now issued two public notices on these matters and has been seeking public comment consistent with the Administrative Procedures Act for over seven months.⁷ To the extent that parties, such as CALLS, can propose meaningful solutions to complex regulatory matters is beneficial to the Commission and nation as a whole. The burden is now on the Commission, and only the Commission, to determine whether the modified CALLS plan should be adopted in whole or in part.

³ Modified CALLS Plan at 2.

⁴ *USTA v. FCC*, No. 97-1469 (D.C. Cir. May 21, 1999); see USTA Comments at 3.

⁵ ALTS/TWTC Comments at 5.

⁶ Allegiance Comments at 2.

⁷ The original CALLS proposal was placed on public notice on September 15, 1999. See *Access Charge Reform*, Notice of Proposed Rulemaking, CC Docket Nos. 96-262, 94-1, 99-249, and 99-235 (1999) ("Original Plan").

II. ARGUMENTS SUGGESTING THAT CONSUMERS ARE WORSE OFF UNDER CALLS ARE FLAWED

A. The Modified CALLS Plan Will Yield Savings For Consumers

Some commenters have argued that consumers will pay more if the modified CALLS plan is adopted because of the SLC increases and new interstate access universal service charge that may appear on local telephone customers' bills.⁸ NASUCA, for example, argues that CALLS imposes a "mandatory cost recovery on a captive customer base" and that CALLS is nothing more than a "price fixing agreement between competitors."⁹ Not only do these commenters ignore economic reality regarding cost causation principles, but they do a disservice to the constituents that they allegedly represent by not fully understanding the CALLS proposal.

By eliminating the residential primary interexchange carrier charge (PICC) on primary lines (i.e., the "captive customer" as NASUCA would argue) and increasing the cap on the SLC on July 1, 2000 to only \$4.35, low volume callers could save as much as \$2.62 per month under the modified CALLS plan.¹⁰ With the commitments of AT&T, Sprint, and Global Crossing, these savings could be

⁸ See, e.g., Florida PSC Comments at 2, NASUCA Comments at 3; Texas Office of Public Utility Counsel, *et al.*, Comments at 7-11.

⁹ NASUCA Comments at 2.

¹⁰ CALLS Comments at 4. Some commenters argue that the Commission should also combine the multi-line business SLCs and PICCs. Ad Hoc Telecommunications Users Committee Comments at 8-10. While Global Crossing would have no objection to such action eventually being taken, the Commission should recognize that it need not adopt this modification to find that adoption of the CALLS proposal – with the modifications suggested by Global Crossing – would serve the public interest.

even greater for zero-volume consumers (with savings up to \$4.68 per month) and greatest for Lifeline consumers (with savings up to \$5.89 per month).¹¹

Even if the major interexchange carriers made no commitments on minimum usage plans, subscribers still would be better off if the Commission adopted the modified CALLS proposal. Under the proposal, SLC increases and explicit universal service charges on July 1, 2000 will be less than the scheduled PICC increase.¹² The proposal also provides for significant reductions in traffic sensitive charges as a result of moving more of the non-traffic sensitive costs from usage-based access charges to flat-rated end user charges.¹³ Because of the fiercely competitive interexchange market, this proposal will likely lead to lower prices for most long distance customers.¹⁴

Taken as whole, the modified CALLS plan, with or without interexchange carrier commitments, creates a more economically sound cost recovery structure and can produce significant consumer surplus. The concept of consumer surplus here includes more than the dollars that would be able to remain in a subscriber's pocket. It also includes the efficiency and productivity gains that would result

¹¹ CALLS Comments at 1-5. The Alliance of Public Technology also identifies significant consumer welfare benefits if CALLS is adopted. Alliance for Public Technology, *et al.*, Comments at 6-7 and Appendix A.

¹² See 47 C.F.R. § 69.153(c)(2).

¹³ Global Crossing Comments at 4; Qwest Comments at 2-3. See *also*, Ad Hoc Telecommunications Users Committee Comments at 2-5. One commenter noted that competitive local exchange carriers have shown little interest in providing facilities-based competition in many areas beyond the reach of metropolitan areas, and as a result, reductions in switched access services are necessary. American Petroleum Comments at 3-4.

¹⁴ Certain competitive LECs complain that the proposed reductions in the average traffic sensitive rate elements are too steep. See, *e.g.*, ALTS/Time Warner at 6. The Commission should recognize this as merely a plea for protection from legitimate price reductions that would benefit consumers. The Commission should reject this argument.

from the retargeting of telecommunications costs. To the extent that telecommunications costs are better targeted, the businesses that rely on telecommunications can operate more efficiently and become more productive. This in turn promotes many benefits: lower retail and wholesale prices; prices that are subject to less upward pressure; increased opportunity for efficient use of technology by business; and the ability to reap the potential gains of substituting virtual systems and processes for older legacy systems faster. An economy that benefits from better telecommunications cannot help but generate positive ripple effects for consumers in the process. While not easily quantifiable, they are real.

B. Arguments Suggesting That The CALLS Proposal Violates Section 254(k) Are Misguided

Section 254(k) of the Communications Act, as amended, provides in part that the "Commission, with respect to interstate services, ... shall establish any necessary cost allocation rules ... to ensure that services included in the definition of universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services."¹⁵ Many commenters representing state interests, argue that the modified CALLS plan will violate section 254(k) by allowing virtually 100% of the interstate common line cost to be recovered from the subscriber of basic service.¹⁶

¹⁵ 47 U.S.C. §254(k).

¹⁶ See, e.g., Michigan PSC Comments at 3; Montana PSC Comments at 3; State Members of the Federal-State Joint Board on Universal Service Comments at 9; NASUCA Comments at 6.

These commenters misinterpret the applicability of section 254(k). The subscriber of basic service is also a subscriber of interexchange service and by definition, “universal service,” includes “access to interexchange services.”¹⁷ It makes sense for the Commission to conclude that 100% of the separated non-traffic sensitive interstate loop costs is a reasonable share of joint and common costs of facilities used to provide interstate access services. Similarly, it also makes sense for end-users to bear the interstate portion of the loop costs for having the ability to make interstate calls.

Indeed, the Eight Circuit has already rejected the states' arguments. The Court concluded that “because the SLC is a method of recovering loop costs, not an allocation of those costs between supported and unsupported services, section 254(k) is not implicated.”¹⁸ Thus, there is no basis for the claim that the shift in non traffic sensitive (NTS) cost recovery from carriers to end-users violates section 254(k).¹⁹

III. THE RECORD DEMONSTRATES SUPPORT FOR RECOGNIZING THE SPECIAL CHARACTERISTICS OF SMALLER CARRIERS

A. The Commission Should Adopt A Lower Productivity Factor for Mid-Size Carriers

As discussed in Global Crossing's comments, the Commission should apply a lower productivity factor to both special and switched access services for

¹⁷ Federal-State Joint Board on Universal Service, Report and Order, CC Docket 96-45, FCC 97-157 (1997) at para. 22.

¹⁸ *Southwestern Bell Telephone Company v. FCC*, 153 F.3d 523, 558-559 (8th Cir. 1998).

¹⁹ These commenters also ignore the fact that end users ultimately pay for these costs in the form of higher long distance rates. The CALLS proposal simply provides a more economically efficient means of recovering NTS costs.

mid-size carriers.²⁰ The modified CALLS plan recognized the key differences between large and mid-size price cap incumbent LECs and maintained that, “[d]ue to their size, mid-size LECs generally have different economies of scale than do large LECs; they incur greater costs to provide service, do not receive the same volume discounts from vendors, and overall, shoulder a disproportionate burden, both in terms of time and expense, in meeting regulatory costs.”²¹ While these factors were used by CALLS to justify different target rates for large and mid-size LECs, and Global Crossing supports such use, the same rationale leads to a X factor differential for mid-size carriers. For example, Cincinnati Bell demonstrates in its comments that for these very same reasons, mid-size carriers are hampered in their ability to maintain the same productivity growth rates as the large incumbent LECs.²² Cincinnati Bell also demonstrates that the evidence on the record supports a differential of at least 1.0 to 1.5 percent between the X factor applied to the large companies compared to the mid-size companies.²³ This differential is also supported by the findings reached in the attached study by Dr. Jeffrey H. Rohlfs and in comments filed in response to the Commission's Further Notice of Proposed Rulemaking in CC

²⁰ Global Crossing Comments at 8-10.

²¹ Modified CALLS Plan at 14. CALLS also correctly notes that it was for these reasons that the Commission determined that mid-size price cap LECs should be permitted to use Class B Accounts and submit their cost allocation manuals based on the Class B System of Accounts. See 1998 Biennial Regulatory Review – Review of Accounting and Cost Allocation Requirements, Report and Order, 14 FCC Rcd. 11396 (1999).

²² Cincinnati Bell Telephone Comments at 2-4.

²³ *Id.*

Docket No. 94-1.²⁴ Global Crossing agrees with these findings and encourages the Commission to adopt the differential for both special and switched access services.

Several mid-size carriers also have lower unit costs than the large price cap carriers and thus they tend to have a slower productivity growth. As stated more thoroughly in the attached study, the differentials among companies in productivity growth that may be reasonably anticipated vary systematically as a direct function of company size and current cost level per unit of output. In particular, the study demonstrates that smaller companies with lower costs cannot be reasonably anticipated to realize rates of productivity growth comparable to larger companies with higher costs. Thus, to ensure that the rates charged by smaller companies are just and reasonable requires the prescription of a lower X factor. Failure to specify a lower X factor would imply that smaller companies were not being afforded a reasonable opportunity to recover their costs and that the prescribed rate caps were, therefore, unjust and unreasonable.

Using a model previously developed (and submitted to the Commission and to which the Commission has previously had reference) that relates productivity gains to holding company size and per-unit cost levels, the attached study estimates that Global Crossing's productivity differential is 2.76 percent.²⁵ It also

²⁴ See Price Cap Performance Review for Local Exchange Carriers, Further Notice of Proposed Rulemaking, CC Docket No. 94-1 (1999) at para. 48 and Cincinnati Bell Comments, CC Docket No. 94-1, at 5-10 (filed Jan. 7, 2000).

²⁵ This differential was determined using data from Frontier Telephone of Rochester, Inc., which is a wholly-owned subsidiary of Global Crossing North America, Inc.

estimates that a reasonable productivity adjustment for Global Crossing is at least 2 percentage points below that of the BOCs and GTE.

As a result of these findings, not only should the Commission recognize that a differential exists between large and mid-size carriers, but the differential may increase as carriers' costs decline.

B. The Commission Should Adopt Other Measures To Ensure That The Modified CALLS Plan Serves The Public Interest

Global Crossing's comments identify a number of proposals, that if adopted by the Commission, would help recognize the special characteristics of smaller carriers and ultimately serve the public interest. First, the Commission should exclude mid-size price-cap carriers from the reduction in traffic sensitive rate that would take place on July 1, 2000 under the CALLS proposal.²⁶ Eliminating this reduction will have little to no impact on the total \$2.1 billion in reductions that CALLS has proposed. Also, as supported by Citizens, pooling is not an effective solution for rural mid-size carriers serving competitive markets.²⁷ Second, mid-size carriers should not be required to file forward-looking cost data once the SLC cap exceeds \$5.00.²⁸ Such information could be gathered from existing proxy cost models already on file with the Commission and to impose this requirement on mid-size carriers is simply too burdensome. Third, as clearly stated by Cincinnati Bell, the Commission should require that tandem switched and tandem transport rates receive at least a proportionate share of the July 1,

²⁶ Global Crossing Comments at 6-7.

²⁷ Citizens Communications Comments at 9-10.

²⁸ Global Crossing Comments at 10-11.

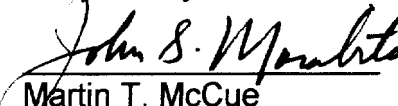
2000 reductions.²⁹ With this modification, smaller interexchange carriers, which rely more heavily on tandem routed traffic than the larger carriers, would not be disadvantaged relative to the largest interexchange carriers. Finally, Global Crossing supports USTA's request to make the modified CALLS plan available as a voluntary option for all price cap LECs.³⁰

With these corrections (including adoption of a separate X factor for mid-size carriers), the inequities that exist between large and small carriers would be minimized and Global Crossing would support the modified CALLS plan.

Conclusion

For the foregoing reasons, Global Crossing encourages the Commission to adopt the modified CALLS plan, subject to the modest adjustments for smaller carriers. While the modified plan would be an improvement over the current regulatory regime, Global Crossing could only support new rules if the Commission adopts the changes identified herein.

Respectfully submitted,


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April 17, 2000

²⁹ Cincinnati Bell Comments at 5-6. See Global Crossing Comments at 11-12.

³⁰ USTA Comments at 1. See *also*, Global Crossing Comments at 13; Citizens Comments at 3.

**PRODUCTIVITY DIFFERENTIALS
AMONG LOCAL-EXCHANGE CARRIERS**

**Prepared for
Global Crossing North America, Inc.**

by

**Jeffrey H. Rohlfs
Kirsten M. Pehrsson**

April 17, 2000

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PRODUCTIVITY DIFFERENTIALS AMONG LOCAL-EXCHANGE CARRIERS

I. INTRODUCTION

The goal of price regulation is to ensure just and reasonable rates. Under a “price cap” charge control, the legal and economic reasonability of rates charged over time is, in principle, ensured by a variety of periodic adjustments to reflect changes in costs and the value of money. The “x-factor” in a price cap regime is a means of adjusting rates to reflect any extraordinary productivity improvements (in relation to the overall economy’s rate of productivity growth) that may be reasonably anticipated over the plan’s term. If the x-factor overestimates reasonably anticipated productivity growth (relative to that of the overall economy), rates will be capped at levels that do not afford regulated companies a reasonable opportunity to recover their costs (because costs will not fall as rapidly as anticipated). If the x-factor underestimates the productivity growth that may be reasonably anticipated, rates will be capped at levels that afford regulated companies an opportunity to earn economic returns in excess of their costs (because costs fall more rapidly than anticipated). In either case of misestimated productivity growth, there is a legitimate economic basis to infer lack of legal and economic reasonability of rates.

In this submission, we explain the economic and empirical basis for our view that the individual local-exchange carrier (“LEC”) productivity growth that may be reasonably anticipated systematically varies as a direct function of holding-company size and current cost level per unit of output. In particular, we argue that smaller holding companies with lower costs cannot be reasonably anticipated to realize rates of productivity growth comparable to larger holding companies with higher initial costs. Thus, ensuring that the rates charged by smaller holding companies are just and reasonable requires the prescription of a lower x-factor.¹ Failure to specify a lower x-factor would imply that smaller holding companies were

¹ Rather than prescribe a lower x-factor, in the past the Commission has afforded smaller companies the option of opting out of price caps and subjecting themselves to traditional rate-base, rate-of-return regulation. This
(continued...)

not being afforded a reasonable opportunity to recover their costs and that the prescribed rate caps were, therefore, unjust and unreasonable.

Using a model we have previously developed (and submitted to the Commission and to which the Commission has previously had reference)² that relates productivity gains to holding-company size and per-unit cost levels, we estimate that the differential productivity growth between the RBOCs/GTE and Frontier Telephone of Rochester, Inc., Global Crossing's largest operating LEC, is approximately 2.76 percent. We estimate that a reasonable x factor for Global Crossing is at least 2 percentage points below that of the RBOCs and GTE.

II. BACKGROUND

Over the last ten years a considerable body of argument and evidence has been adduced indicating that variations in the conditions under which different carriers operate cause significant differences in the productivity gains they can be reasonably expected to make.

- Our 1989 study demonstrated that Cincinnati Bell, while maintaining a high level of efficiency and running a low-cost operation compared to other carriers, exhibited a slower rate of productivity growth.³ Not surprisingly, since Cincinnati Bell was already operating efficiently, further improvements were more difficult to come by.
- In 1991, we utilized data on a substantial number of LECs with holding companies of different sizes and a regression analysis to show that productivity gains were systematically lower (in a statistically significant manner) for smaller holding companies and for carriers that already have lower average costs.⁴

(...continued)

tack avoids the problem of charge controls set at unreasonably low levels, but with the disability of a sacrifice in beneficial incentive effects in terms of economizing and innovative behavior, as well as beneficial competitive safeguard effects, generally associated with price cap regulation. It, figuratively, avoids the problem of dirty water by throwing out the baby.

² See J.H. Rohlfs, "Differences in Productivity Gains Among Telephone Companies," prepared for Centel, 3 September, 1991.

³ See NERA, "Incentive Regulation and Estimates of Productivity," prepared for Cincinnati Bell, 9 June 1989.

⁴ See Rohlfs, *op. cit.*

- In 1997, Rohlfs & Pehrsson updated the Cincinnati Bell numbers and found that, while Cincinnati Bell had quite substantially lower costs than the RBOCs, its rate of productivity growth remained (not unexpectedly) significantly lower.⁵
- In 1998, Rohlfs & Pehrsson measured Cincinnati Bell's and Aliant's productivity using the productivity model developed by the FCC's staff and found them both to be significantly lower than the RBOCs.⁶
- Recently, Rohlfs & Pehrsson were able to utilize newly available data to estimate productivity gains for Citizens Communications' New York property and found that its productivity gains were also significantly below the RBOCs.⁷

The theoretical underpinnings of these findings are fairly straightforward:

- LECs are differently situated and possess different characteristics affecting their costs and abilities to exploit various administrative and operational economies. Some LECs, by virtue of their limited holding-company size and/or the sparsely populated geographic areas they serve, are presented with a different and, in particular, usually more limited set of opportunities to realize productivity advances through deployment of new technology or exploitation of economies associated with growing output. Some LECs, for example, operate in less densely populated rural areas, where lines are longer (and sunk costs proportionally greater) and calling volumes are lower. A variety of technical and operational economies that can be exploited in areas where population density is high and growing are not available to LECs operating in non-growth or even declining rural areas. Smaller holding companies are less well positioned to exploit economies from more intensive use (*viz.*, cost spreading) of various administrative resources and systems.
- A LEC that has already taken all or most of the available steps to reduce costs and enhance productivity possesses less potential for extraordinary productivity gains compared to a similarly situated LEC that has not yet fully exploited the various available means for productivity enhancement.⁸ Thus, LECs that have

⁵ "One Size Does Not Fit All: The Inadequacy of a Single X-Factor for All Price-Cap Companies," Prepared for Cincinnati Bell, 1997.

⁶ "One Size Does Not Fit All: Further Evidence," prepared for Cincinnati Bell and Aliant, 23 April 1998.

⁷ "Analysis of Productivity Trends of Citizens Communications," prepared for Citizens Communications, 21 January 2000.

⁸ Analogously, an obese person has a greater potential for extraordinary weight loss compared to a thin person. As most of us (at least above a certain age) know, it is easier to lose the first couple of pounds than the last couple after most of the "fat" is gone. The same is true of telephone companies. BT, for example, was a formerly state-owned monopoly—indeed, part of the British Post Office—and after privatization was initially able to
(continued...)

already extensively deployed fiber optic lines and other advanced gear, or that have deployed computerized systems to cope efficiently with administrative and operational requirements, are harder pressed to produce extraordinary gains than LECs which have not. They cannot, therefore, be reasonably anticipated to produce comparable reductions in per-unit costs. They have already taken the steps others will be taking to achieve gains.

In 1991, we undertook a quantitative statistical analysis⁹ to determine the principal sources of variation in observed productivity gains among different LECs. The study was a pooled time-series cross-section analysis. The sample included data from 21 Bell companies and 22 independent companies from 1986 to 1989.

The dependent variable was growth in total factor productivity ("TFP"). In the calculation of TFP, output was measured in physical units; *viz.*, access lines and dial-equipment minutes ("DEMs"). Estimates of marginal costs were used as weights to calculate aggregate output. Inputs consisted of capital, labor and materials.

In an effort to arrive at a robust explanatory relationship, we regressed our measure of TFP growth against a variety of explanatory variables conceived to capture a variety of potential independent influences on productivity gains. These included holding company size (to gauge the existence and importance of administrative economies of size), a cost index (to test the hypothesis that lower costs spell lower anticipated productivity gains), time effects (to check for the effect of any omitted time-dependent variables), the digital equipment share (to gauge the potential for productivity advance through deployment of digital switches), age of plant (again to try to capture the potential for productivity advance through modernization of plant & equipment), growth rate (to reflect the possibility that the cost of serving new demand may differ from that of serving existing demand) and, finally, usage per access line (to reflect the fact that the productivity of each of these outputs may vary and, therefore, that productivity may differ when the mix differs from the average).

(...continued)

achieve high rates of productivity growth as it "caught up" to the standards set by privately-owned (profit-motivated) companies. Now its rate of productivity growth has slowed.

In our regressions, the first three variables (*i.e.*, holding-company size, cost level and fixed time effects) were statistically significant, while the remaining variables were not.¹⁰ The equation which best explained the changes in productivity is as follows:

$$\Delta TFP = -0.1236 + 17.48x_{\text{cost index}} + 0.007821 \ln x_{\text{hsize}} - 0.0900x_{1987} - 0.0469x_{1988}$$

where,

ΔTFP	=	Gain in Total Factor Productivity;
$x_{\text{cost index}}$	=	Estimate of Cost Level (total cost per unit output); Total Cost/Marginal Cost _{lines} * Q _{lines} + Marginal Cost _{usage} Q _{usage});
$\ln x_{\text{hsize}}$	=	Log of size of the holding company (measured in access lines);
x_{1987}	=	Fixed effect for the year 1987; and
x_{1988}	=	Fixed effect for the year 1988.

1. Statistical Fit

r^2 :	0.61
r^2_{ADJ} :	0.59
MSE_{root} :	0.0315
F Value:	43

t Statistics:

$x_{\text{cost index}}$:	1.8
$\ln x_{\text{hsize}}$:	2.8

(...continued)

⁹ See Rohlfs, *op. cit.*

¹⁰ In our earlier paper, we noted that the effects of digital share and age of plant were likely to be incorporated to some extent in our cost-level explanatory variable.

x_{1987} : -12.3

x_{1988} : -6.5

All the estimated coefficients are significantly greater than or less than zero at the 5-percent level (one-tailed test).

The model suggests that a doubling of holding-company size would result in slightly more than a half percent per year increase in measured productivity. Similarly, the evidence is that a firm with costs 10 percent *below* average will display productivity gains about one-quarter of a percent per year lower than firms with average costs.

III. APPLICATION TO FRONTIER TELEPHONE OF ROCHESTER, INC.

We applied this model using 1997 values of the explanatory variables to estimate the differential between the expected rate of productivity growth of Frontier Telephone of Rochester, Inc. and that of the RBOCs. The Rochester company is Global Crossing's largest operating company and is the only Global-Crossing company for which sufficient data were available to conduct the analysis. It accounted for 57 percent of Global Crossing's access lines in 1997.

The estimated differential in productivity growth between the RBOCs/GTE and the Rochester company was 2.76 percent per year.¹¹ In estimating this differential, we used the following procedures in order to reflect conditions in 1997:

- We use net plant in 1997 as a proxy for economic value of plant. This value reflects GAAP accounting methods for any company that switched to GAAP in 1997 or earlier. As a result of that accounting shift, the book values of plant is likely better to reflect economic values.¹²

¹¹ The RBOC average is a weighted average, using total costs as weights. These weights are the theoretically correct measure

¹² In the past, regulatory depreciation was far less than economic depreciation. (We believe that this situation still obtains, though regulatory depreciation rates have significantly increased over time.) See, for example, J.H. Rohlfs, C.J. Jackson, and R.M. Richardson, "The Depreciation Shortfall," filed before the FCC, CC Docket No. 96-262, *USTA Comments*, January 29, 1997. For this reason, a method that uses past regulatory depreciation rates as proxies for economic depreciation leads to biased estimates of the economic capital stock.

- We separate out unregulated activities of all companies. We do so by multiplying each cost element by the ratio of regulated operating costs to total operating costs. (Our measures of physical outputs – access lines and DEMs – are both regulated outputs).
- For our base case, we used the marginal cost estimates that were used in the original study. They are \$300 per access line per year and \$0.01 per DEM. We also did sensitivity analysis with respect to marginal cost. We used the estimates from Scenario A of the SPR Top Down Cost Model.¹³ They are \$362.04 per access line per year and \$0.0017 per DEM. We did sensitivity analysis with respect to low marginal-cost estimates; *viz.*, \$200 per access line per year and \$0.001 per DEM. The estimated productivity differential with the SPR marginal-cost estimates was 2.72 percent per year. The estimated productivity differential with the low marginal-cost estimates was 2.82 percent per year. We conclude that the estimated productivity differential is robust with respect to alternative plausible estimates of marginal costs.

These results apply only to Frontier Telephone of Rochester, Inc. and not to all of Global Crossing's operating LECs. Nevertheless, most of the estimated differential in productivity growth derives from smaller holding-company size. The effect of lower average cost is much smaller. We therefore believe that it is reasonable to infer that the x-factor for Global Crossing should be at least 2 percentage points below that of the RBOCs.

IV. UPDATE

We are in the process of updating our earlier model, utilizing more recent data and attempting to gauge any independent effects of market density on costs in addition to the effects of holding-company size and cost level.

V. CONCLUSION

Our empirical analysis indicates that Global Crossing is highly unlikely to be capable of achieving productivity gains equivalent to those of its larger, higher cost rivals. Unless a lower x-factor were prescribed for smaller carriers, they might petition to withdraw from price caps or

¹³ Strategic Policy Research, "A New Set of 'Top Down' Incremental Cost Measures (Revised)," filed before the FCC, CPD Docket No. 97-2, February 18, 1997.

to litigate the terms of their participation were they compelled to participate. Companies that are not already subject to price caps may opt to continue that status. These actions would, in our view, be unfortunate since rate-base, rate-of-return regulation is an inferior control mechanism flawed in numerous respects, as the Commission well knows and has frequently remarked. A regime that, by design and effect, consigns carriers with low rates of productivity growth to cost-based regulation sacrifices the benefits of incentive regulation and entails suffering the disabilities of rate-of-return regulation.

The Commission has already recognized the differences among LECs with respect to price-cap regulation. It has made price caps optional for companies other than the RBOCs and GTE and has established an incentive regulation plan for such companies. These policies are certainly constructive.

We believe that the Commission should now take the logical next step and specify for mid-sized carriers one or more x-factors that differ from those of the RBOCs and GTE. The studies cited above, in conjunction with the current study, provide strong evidence that prospects for productivity growth are lower for mid-sized companies than for the RBOCs and GTE. To be sure, the mid-sized companies are not homogeneous, but the studies provide evidence that both mid-sized rural carriers and mid-sized (low-cost) urban carriers both have slower productivity growth than the RBOCs/GTE.

It is not necessary to develop separate x factors for each and every carrier, a course that might prove administratively unworkable. A minimal and very constructive policy change would be to have a single x-factor differential to reflect the slower productivity growth resulting from the smaller sizes of the mid-sized holding companies (relative to those of the RBOCs and GTE). In the Centel study, size of holding company was a statistically significant explanatory variable at the 1 percent level. There is also ample evidence to support a further x-factor differential for companies that already have significantly lower costs than the RBOCs/GTE.

Certificate of Service

I hereby certify that, on this 17th day of April, 2000, copies of the foregoing Reply Comments of Global Crossing North America, Inc. were served by first-class mail, postage prepaid, upon parties on the attached service list.



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